WHAT IS CLAIMED IS:

1. A damper for damping vibration in an integrally bladed turbine disk, the damper comprising:

an annular member adapted for being coupled to the integrally bladed turbine disk; and

a plurality of fingers spaced circumferentially around the annular member, each of the fingers having a base portion which is coupled to the annular member and extending radially therefrom;

wherein each of the fingers is tangentially movable relative to the annular member when the turbine disk vibrates in a diametral mode shape such that the plurality of fingers contacts a surface of the turbine disk to absorb vibrations.

2. The damper of Claim 1, wherein each of the plurality of fingers includes a frictional surface adapted to contact a face of the integrally bladed turbine disk.

3. The damper of Claim 2, wherein the frictional surface of each of the plurality of fingers is arcuate in shape.

4. The damper of Claim 2, wherein the frictional surface is formed from a material that is resistant to fretting.

5. The damper of Claim 1, wherein the annular member and the plurality of fingers are integrally formed.

6. The damper of Claim 5, wherein each base portion is formed by a pair of circumferentially spaced, radially extending slots.

7. The damper of Claim 6, wherein each of the plurality of fingers is further defined by a pair of circumferentially-spaced, radially-extending slots, each of the circumferentially-spaced, radially oriented slots intersecting one of the circumferentially-spaced, radially extending slots, the circumferentially-spaced, radially oriented slots cooperating with the circumferentially-spaced, radially extending slots to provide the plurality of fingers with a generally T-shape.

8. The damper of Claim 6, wherein each of the circumferentially-spaced, radially extending slots terminates at a slot aperture for reducing a concentration of stress at an intersection between the annular member and the plurality of fingers.

9. The damper of Claim 5, wherein the annular member is a continuous hoop.

10. An integrally bladed turbine disk assembly comprising:

an integrally bladed turbine disk; and

a damper for damping vibration in the integrally bladed turbine disk, the damper including an annular member and a plurality of fingers, the annular member coupled to an axial face of the integrally bladed turbine disk, the plurality of fingers coupled to and circumferentially spaced around the annular member, each of the fingers having a base portion coupled to the annular member and extending radially outwardly therefrom, each of the fingers including a contact surface for contacting the axial face of the integrally bladed turbine disk;

wherein the annular member and the plurality of fingers are integrally formed and each of the fingers is adapted to move tangentially relative to the annular member such that contact between the contact surface and the axial face of the integrally bladed turbine disk reduces vibrations in the integrally bladed turbine disk when the integrally bladed turbine disk vibrates in a diametral mode shape.

11. The integrally bladed turbine disk assembly of Claim 10, wherein each base portion is formed by a pair of circumferentially spaced, radially extending slots.

12. The integrally bladed turbine disk assembly of Claim 11, wherein each of the plurality of fingers is further defined by a pair of circumferentially-spaced, radially-extending slots, each of the circumferentially-spaced, radially oriented slots intersecting one of the circumferentially-spaced, radially extending slots, the circumferentially-spaced, radially oriented slots cooperating with the circumferentially-spaced, radially extending slots to provide the plurality of fingers with a generally T-shape.

13. The integrally bladed turbine disk assembly of Claim 10, wherein the annular member is a continuous hoop.

14. The integrally bladed turbine disk assembly of Claim 10, wherein the annular member is shrunk-fit into a cavity formed into the axial face.

15. The integrally bladed turbine disk assembly of Claim 10, wherein a plurality of fasteners are employed to fixedly couple the annular member to the axial face.

19.
16. The integrally bladed turbine disk assembly of Claim 10, wherein the contact surface is arcuately shaped.

20.
17. The integrally bladed turbine disk assembly of Claim 10, wherein the axial face of the integrally bladed turbine disk includes a circumferentially extending wall member having a shape corresponding to a truncated inverse cone, the contact surface of the plurality of fingers contacting the circumferentially extending wall member to reduce vibrations in the integrally bladed turbine disk when the integrally bladed turbine disk vibrates in a diametral mode shape.

16.
18. The integrally bladed turbine disk assembly of Claim 15, wherein contact between the plurality of fingers and the axial face of the integrally bladed turbine disk generates a contact force which is applied to the integrally bladed turbine disk in a direction that is normal to the contact surface.

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19. The integrally bladed turbine disk assembly of Claim 17, wherein the contact force is received by an arcuate pocket formed into the axial face of the integrally bladed turbine disk.

18.
20. The integrally bladed turbine disk assembly of Claim 19, wherein the annular member and the plurality of fingers are coated with a material that is resistant to fretting.